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SWIS # 49-AA-0001

California Regional Water Quality Control Board
North Coast Region

ORDER NO. R1-2000-62
ID NO. 1B80149OSON
AND
1B99011RSON

WASTE DISCHARGE REQUIREMENTS AND WATER QUALITY CERTIFICATION FOR SONOMA COUNTY CENTRAL DISPOSAL SITE AND EAST CANYON EXPANSION UNIT CLASS III WASTE MANAGEMENT UNITS

Sonoma County

The California Regional Water Quality Control Board, North Coast Region, (hereinafter the Regional Water Board) finds that:

1. The County of Sonoma, Department of Transportation and Public Works (hereinafter discharger) owns and operates the Central Disposal Site, a Class III solid waste disposal facility. The disposal site has been in operation since 1971, and currently serves as the only operating municipal landfill within the County of Sonoma. The discharger submitted a Joint Technical Document (JTD)/Report of Waste Discharge (ROWD) dated January 15, 1999, for the construction of a new landfill immediately east of the existing facility. Supplemental information to complete filing of the application was submitted on October 22, 1999, January 26, 2000, April 10, 2000, June 22 & 29, 2000 and July 18, 2000. Previous Waste Discharge Requirements (WDR's) did not cover the proposed expansion area.

2. The existing disposal facility has been constructed in a canyon located at 500 Mecham Road, Petaluma, less than 4 miles southwest of the City of Cotati in an unincorporated area of Sonoma County. The facility is located on two unnamed tributaries to Stemple Creek in Section 4 and 9 T5N, R8W, MDB&M (latitude of 38 degrees, 18 minutes north and longitude of 122 degrees, 45 minutes west) as shown in Attachment "A", incorporated herein and made part of this Order.

3. The disposal site accepts non-hazardous and inert solid waste from commercial haulers and private citizens, is open to the public seven days a week, 359 days a year, receiving approximately 1200-1800 tons of refuse per day. The permitted maximum tonnage is 2500 tons per day. The maximum permitted elevation of the site is 565 feet above mean sea level, and the minimum permitted elevation is 212 feet above mean sea level.

4. The total site area is 398.5 acres which includes two landfills, the existing landfill unit "Landfill 1", and the proposed East Canyon Expansion Unit "Landfill 2". The existing landfill footprint covers approximately 130 acres and the proposed expansion area covers an additional 42.8 acres. The total area permitted for refuse disposal is approximately 172.8 acres.

5. The disposal site as delineated in Attachment "B" meets the criteria contained in Title 27, CCR as a Class III landfill for non-hazardous solid wastes.

6. The existing onsite support facilities include County offices, scalehouse, recycling facilities, landfill gas collection, flaring and co-generation power plant, wood and greenwaste diversion processing area, composting operations, material recovery and storage areas, two Class II leachate storage-surface impoundments, leachate treatment plant, and various sedimentation ponds. Onsite operations also include a rock extraction project. The greater improvement plan of development includes additional construction of a public tipping facility, household hazardous waste collection facility and laboratory, as shown in Attachment "C".

7. Potential future development plans include the construction of two expansion landfill units (West Canyon expansion, and Rock Extraction expansion), a compressed gas fuel facility and a soil bioremediation facility. However, these are only proposed projects, are not part of this JTD/ROWD, and therefore not subject to this Order. The discharger must submit a revised Report of Waste Discharge prior to any discharges of waste associated with these proposed projects.

8. Landfill 1 consists of upper and lower units. The upper unit is the original 1971 footprint and is the current location for the County's composting operations. The lower canyon unit was constructed as a vertical expansion area in 1988 and designed with a clay lined dendritic leachate collection recovery system. The entire Landfill 1 existing unit is classified as unlined by current standards. Remaining capacity for the lower canyon is about 1½ years. The upper canyon area will provide capacity for approximately 5 years, requiring the composting operations to be removed and/or relocated offsite. It is estimated that the existing, permitted landfill has capacity until the year 2006.

9. Landfill 2, the East Canyon expansion landfill, will be constructed in four main phases, beginning with the lower, southern canyon, "Phase 1" liner construction proceeding through "Phase IV", which will complete the East Canyon footprint, as shown in Attachment "D". A final "Phase V" will include placing waste over both Landfill 1 and Landfill 2. It is estimated that the expansion area will extend the life of the landfill to the year 2014.

10. Surface, groundwater and landfill gas monitoring locations have been established for both Landfills 1 and 2 as shown on Attachments "E" and "F".

11. Construction of Landfill 2 will result in the filling of 0.98 acres of existing wetlands. The discharger has prepared a wetlands mitigation proposal which will ensure that wetland beneficial uses will be protected. An offsite wetlands mitigation is planned on a 38-acre County owned parcel at 601 Hammel Road, south of the landfill permitted boundary, as shown in Attachments "B" and "G".

12. The Total Airspace Design Capacity is approximately 32,650,000 cubic yards of waste and cover and the Total Airspace Remaining Capacity is approximately 14,446,000 cubic yards for the 172 acre waste footprint.

13. On October 9, 1991, the United States Environmental Protection Agency (USEPA) promulgated federal municipal solid waste (MSW) regulations under the Resource Conservation and Recovery Act (RCRA), Subtitle D (Title 40, Code of Federal Regulations, Parts 257 and 258), hereafter referred to as "Subtitle D". These regulations apply to all California Class III landfills accepting MSW, including the Sonoma County Central Disposal Site.

14. Effective July 18, 1997, the water quality regulations for Class II and Class III disposal facilities formerly contained in Chapter 15, Title 23, California Code of Regulations (CCR), and the solid waste regulations formerly in Title 14, CCR, were re-codified into Chapters 1 through 7, Subdivision 1, Division 2, Title 27, CCR (Title 27). Chapter 15 is therefore no longer applicable to this facility.

WASTES AND THEIR CLASSIFICATION

15. The Discharger proposes to continue to accept municipal solid wastes, commercial and industrial wastes, and special wastes, classified as "inert" or "nonhazardous" under Sections 20220 and 20230 of Title 27. The Discharger does not propose to accept wastes defined as "hazardous" or "designated" under Title 27, and these WDRs contain a prohibition against the disposal of such wastes.

16. The landfill accepts nonhazardous grit and screening wastes (special wastes) from local wastewater treatment plants. Liquid wastes generated onsite, such as landfill leachate, is currently trucked for disposal to the Santa Rosa Laguna Sub-Regional Sewage Treatment Plant, under permit No. SR-IW5202 issued by the City of Santa Rosa.

17. The landfill accepts other wastes requiring special handling including autoclaved medical waste, low level contaminated soils, small dead animals, soils from residential areas, and dewatered sludge. County Refuse Bulletins have been developed which describe specific procedures and acceptance criteria for handling these various special wastes or waste suspected of being a hazard.

18. A household hazardous waste exclusion program is in effect at the facility and includes periodic load-checking of wastes.

SITE DESCRIPTION

19. The area surrounding the site is primarily rural grazing area on low rolling hills and valleys. Both landfill units occupy adjacent south-trending valleys that are drained by unnamed tributaries to Stemple Creek.

20. Surrounding land uses include rural residential and agricultural operations including dairy and cattle ranches. The closest subdivision, "Happy Acres", is about 0.5 miles northeast of the facility and has about 70 residences.

21. Groundwater resources for domestic and agricultural water supply serve the surrounding area. There are three adjacent residences associated with dairy and cattle operations served by domestic water supply wells. Numerous additional domestic and irrigation wells are located to the south of the site along Mecham Road.

SURFACE WATER

22. The site is within the Stemple Creek watershed of the Estero de San Antonio Hydrologic Area within the Bodega Bay Hydrologic Unit. Stemple Creek is a coastal tributary to Bodega Bay.

23. The beneficial uses of Stemple Creek, a minor coastal stream not specifically listed in the Basin Plan, and the Estero de San Antonio, are listed below:

a) Municipal and domestic supply
b) Agricultural supply
c) Industrial services supply
d) Industrial process supply
e) Groundwater recharge
f) Navigation
g) Water contact recreation
h) Non-contact water recreation
i) Commercial and sport fishing
j) Cold freshwater habitat
k) Preservation of areas of special biological significance
l) Wildlife habitat
m) Rare, threatened, or endangered species
n) Marine habitat
o) Migration of aquatic organisms
p) Spawning, reproduction, and/or early development
q) Shellfish harvesting
r) Estuarine habitat

24. Stemple Creek has been included on the CWA Section 303(d) list as an impaired water body. The Regional Water Board adopted a Total Maximum Daily Load (TMDL) and Attainment Strategy for the Stemple Creek Watershed on December 11, 1997, in Resolution No. 97-108. The TMDL lists impairments of the beneficial uses for the Stemple Creek Watershed and sets objectives and targets for the reduction of nutrients, sediment and prevention of erosion to the

maximum extent possible. The intent of the TMDL is to restore, enhance and protect the beneficial uses that are being impaired. The Stemple Creek TMDL has not been approved by the State Water Resources Control Board and therefore is not in effect at this time. However, staff will continue to monitor the loading of sediment and nutrients in the watershed and from this facility. Additional controls on these pollutants may be required if necessary in order to achieve water quality objectives.

STORM WATER

25. This Order does not replace the need for a NPDES storm water permit as required by provisions of the Clean Water Act.

26. Storm water run-on and runoff from the site is controlled in a series of perimeter ditches, stormdrain pipes, downchutes and sedimentation ponds located throughout the facility. The purpose of the sedimentation basins is to retain runoff, allowing for settling of sediments, and evaporation. The conveyances route stormwater around the site and off the waste units prior to their discharge to two unnamed tributaries to Stemple Creek.

27. Existing sedimentation basin No. 5 within the East Canyon footprint will be removed and replaced prior to "Phase III" liner construction. Two new sedimentation basins (No.'s 5-replacement and 6) will be constructed for the expansion project at the base of the canyon, as shown in Attachment "B". Landfill runoff from the new unit will be captured by a perimeter ditch system and discharged into the sedimentation basins for settling prior to discharge to Stemple Creek tributaries.

28. The facility receives about 30 inches of average annual precipitation (as shown by the isohyetal map of normal annual precipitation prepared by the Sonoma County Water Agency (1983)). About 95 percent of the storm events occur between the months of November and April. The mean annual evaporation is 43.67 inches, as published by the California Department of Water Resources for Sonoma County (December 1996 - November 1997).

29. The 100-year, 24-hour precipitation event for the Santa Rosa Station is 6.95 inches, based on California Department of Water Resources (DWR) precipitation records, titled, "Rainfall Analysis for Drainage Design Vol. II, Long Duration Precipitation Frequency Data, Bulletin No. 195, October 1976."

30. Both Landfill 1-Existing Unit and Landfill 2- East Canyon Expansion Unit are located at elevations higher than the 100-year floodplain. The Discharger made the required demonstration under Subtitle D (40 CFR 258.11).

31. The discharger has obtained storm water discharge coverage for the facility under the General Industrial, National Pollution Discharge Elimination System (NPDES), Storm Water Permit. The General Permit, No. CAS000001, is issued by the State Water Resources Control Board (SWRCB) under Water Quality Order No. 97-03-DWQ. The permit applies to direct storm water discharges and storm water discharges from the sedimentation basins. The facility is also required to obtain coverage under the General Construction NPDES Storm Water Permit No. CAS000002, Order No. 99-08-DWQ, for construction of all site improvements, 30 days prior to construction activities.

WETLANDS

32. The project involves removal of an existing creek within the East Canyon and placement of the landfill liner as fill. The Landfill 2- East Canyon expansion will impact 0.98 acres of seasonal wetlands, and 0.08 acres of stream channel and habitat. No federal permit is required for this impact. Provisions of these WDR's require the completion of a wetlands mitigation project intended to replace the function and value of wetlands filled as part of this expansion. The Discharger has demonstrated compliance with the requirements of Section 258.12 of Subtitle D as follows:

    a. 40 CFR 258.12 (a) (1) - The Environmental Impact Report indicates that the project as proposed has been designed to minimize impacts to wetlands and that there are no practicable alternatives to the proposed expansion which would be less damaging of wetlands.

    b. 40 CFR 258.12 (a) (2) (i) & (ii) — The requirements in these WDRs help to ensure that the proposed project will not violate applicable water quality standards relating to the discharge of waste to land. In the event of a release, however, Title 27 provides a script for evaluation monitoring and corrective action to restore groundwater quality objectives. The requirements within these WDRs also address monitoring of the underdrain discharge which will minimize the potential for a violation of surface water quality standards or toxic effluent limitations under Section 307 of the Clean Water Act. The implementation of best management practices required under the General Storm Water Permit for Industrial Activities for landfill operations, and, as applicable, under the General Storm Water Permit for Construction Activities similarly protects surface waters.

    c. 40 CFR 258.12 (a) (2) (iii) — The Environmental Impact Report indicates that surveys for endangered or threatened species and their habitats were conducted. No endangered or threatened species or their habitats were found. However, the project will impact 0.33 acres habitat for the northern red legged frog which is a California Species of Special Concern. The discharger has proposed mitigation to reconstruct 0.50 acres of red-legged frog habitat in the offsite mitigation area as described in the EIR and Wetland Mitigation and Monitoring Plan. US Army Corps of Engineers Nationwide Permits 7-Outfall Structures, 13- Bank Stabilization, 14-Road Crossings, and 26- Headwaters and Isolated Waters, have been issued for the mitigation project on April 18, 2000.

    d. 40 CFR 258.12 (a) (3) — The proposed project design, as described in these WDRs, meets the waste containment criteria for a Class III landfill under Title 27, minimizing the potential for a release of solid wastes or leachate which could impact wetlands. The project design also meets the Title 27 requirements for WMU slope and seismic stability, and those for erosion and drainage controls, minimizing the potential for a release of wastes caused by a loss in structural integrity of the WMU, migration of eroded soils or wastes, or migration of waste constituents in drainage. In addition to these factors, the collection of landfill leachate and disposal at an authorized offsite facility should be sufficient to minimize the potential for a catastrophic release which could impair fish, wildlife, and other aquatic resources and their habitats.

e. 40 CFR 258.12 (a) (4) — In addition to minimizing impacts to wetlands, as described above, the Discharger proposes to offset unavoidable impacts to wetlands by creating and converting approximately 2.6 acres of offsite wetlands, as shown in Attachment "G". To protect offsite wetlands, the Discharger has proposed a Wetlands Mitigation and Monitoring Program (WMMP). The Mitigation Area is an offsite existing un-named tributary to Stemple Creek, with associated springs that are degraded as a result of heavy cattle grazing. The mitigation proposes to restore and enhance the existing degraded condition of the site in addition to creating 7 new seasonal wetland features. These WDRs require implementation of the WMMP, including the submission of annual monitoring reports, so as to comply with this section, which incorporates Section 404 of the Clean Water Act. The plan will be implemented prior to and concurrent with construction of the expansion unit. Provisions of these WDRs will ensure that the proposed mitigation will meet the criteria for wetlands in accordance with an established time schedule.

f. 40 CFR 258.12 (a) (5) — The Discharger has submitted sufficient information within the JTD and EIR to address the wetlands criteria outlined in 40 CFR 258.12.

WATER QUALITY CERTIFICATION

33. The East Canyon expansion involves construction and placement of fill within the southern most area of the existing un-named East Canyon tributary that will remain outside of the lined waste footprint. The project involves placement of fill and rock energy dissipators at the outfall of three pipes which discharge within the existing channel near the property boundary. The pipes will discharge collected springs from an underdrain and diverted surface water from two sedimentation ponds immediately south of the East Canyon refuse footprint to the un-named tributary to Stemple Creek. Fill placement for an underdrain discharge pipe and for two sedimentation pond outfall structures is approximately 25 cubic yards in 70 linear feet of stream channel.

34. The Discharger has obtained authorization under Department of the Army Nationwide Permits, pursuant to Section 404 of the Clean Water Act for the portion of the project within the jurisdiction of the Army Corps of Engineers. This includes the area south of the East Canyon waste footprint and is covered under Nationwide Permits previously referenced in Finding No. 32(c).

35. The Discharger has obtained a California Department of Fish and Game Section 1601 Streambed Alteration Agreement on June 22, 2000. Compensatory Mitigation for the fill (0.001 acres) at the three outfall structures within the East Canyon tributary is included in the 1.4 acres of streambed restoration as part of the Wetlands Mitigation and Monitoring Plan. This mitigation is intended mitigation for construction impacts.

36. The Discharger is subject to Clean Water Act Section 401, Water Quality Certification standard and additional conditions as set forth in the Provisions of this Order.

37. This Order certifies that any discharge from the Landfill 2- East Canyon expansion project will comply with the applicable provisions of sections 301 ("Effluent Limitations"), 302 ("Water Quality Related Effluent Limitations"), 303 ('Water Quality Standards and Implementation Plans"), 306 ("National Standards of Performance"), and 307 ("Toxic and Pretreatment Effluent Standards") of the Clean Water Act.

SITE GEOLOGY

38. The geologic units within the property boundaries include Quaternary alluvium, the Late Miocene to Pliocene- Wilson Grove Formation, the Late Miocene to Pliocene- Sonoma Volcanics Group, and the Late Jurassic-to Late Cretaceous Franciscan Formation. These formations are summarized as follows:

    a. The Quaternary alluvium/colluvium occurs within the base of the canyons and thin layers on side slopes and ridgetops. These deposits are interbedded clays, silts, sands and gravels and are removed in the landfill areas as part of grading and cover operations.

    b. The Late Miocene to Pliocene- Wilson Grove Formation unconformably overlies the Franciscan Formation northeast and south of the landfill site. A remnant outcrop of Wilson Grove existed within the East Canyon but has since been removed during grading at the site. The formation consists of poorly consolidated, massive to interbedded, silty sandstone to fine grained, sandy gravels. This formation is the primary water bearing formation for many of the domestic water supply wells within the area.

    d. The Late Miocene to Pliocene-Sonoma Volcanics Group, occurs locally to the southwestern border of the property. The formation has not been mapped in contact with the waste units and outcrops southwest of the Dunham fault along the southwest boundary of the site.

    e. The Late Jurassic-to Late Cretaceous Franciscan Formation underlies both canyon landfill areas, is a regional bedrock unit and the primary geologic unit underlying the site. The formation is comprised of both massive and interbedded graywacke sandstones, with shales and metavolcanic rocks. The formation exhibits deformation ranging from fracturing and consolidation of layered units to complete melange or mixed rock types. The Wilson Grove Formation and Sonoma Volcanics Group overlie the Franciscan Formation and occur discontinuously throughout the region.

39. The facility's location within southwestern Sonoma County is in proximity to numerous regional active fault zones, including the Rodgers Creek- Healdsburg and San Andreas Fault zones which are at distances of approximately 5.7 miles and 15 miles away, respectively. Seismic Hazard Evaluations have been performed using Maximum Probable Event Magnitudes in development of the Landfill 2- East Canyon expansion design.

40. Local faults include the Tolay, Dunham, and an "unnamed fault". The Tolay fault is within 1-mile northwest of the site and is considered potentially active. The Dunham fault and the "unnamed fault" lie within the property boundary of the site. The Dunham fault was investigated onsite in 1992 and found to be "probably pre-Holocene", but this could not be confirmed. The Dunham fault is therefore considered to be potentially active, but is not within 200' of the landfill footprint. The unnamed fault trace is located in the East Canyon area and trends east and slightly north. A fault investigation was completed in 1993 and concluded the fault trace to be pre-Holocene and likely pre-Quaternary.

41. There are no Holocene faults within 200'of the Landfill 2 East Canyon expansion proposed refuse footprint.

GROUNDWATER

42. The primary water table lies within the Franciscan Formation ranging in depth from about 20–130 feet below well elevations (from top of casing). Many Franciscan Formation monitoring wells have demonstrated low-yielding characteristics.

43. Shallow groundwater conditions are present in the Alluvial wells with groundwater ranging in elevation from the surface to about 12 feet. One alluvial well is artesian during wetter periods of the year. Several alluvial wells are also reported dry during the summer months.

44. The natural groundwater gradient direction in the Franciscan Formation is to the southwest, trending with the canyon topography in both Landfill 1 and Landfill 2 area. It is likely controlled by fractures to some degree.

45. The Wilson Grove Formation marine sandstone is a principal water producing formation and a primary groundwater recharge formation in Sonoma County. Many domestic wells located deep within this formation and within 1 mile of the site are reported to have moderate to high yields. The Wilson Grove Formation occurs locally to the south of Hammel Road and to the northeast of site underlying the Happy Acres subdivision. Domestic water supply wells within the subdivision draw water from both geologic formations, the upper Wilson Grove sandstone and the underlying Franciscan bedrock formation.

46. Beneficial uses of areal groundwaters include:

    a. domestic water supply
    b. agricultural water supply
    c. industrial service supply

CORRECTIVE ACTION

47. A release of waste constituents from Landfill 1 to groundwater was discovered in 1995. Numerous detection and corrective action monitoring wells have since been installed in the bedrock Franciscan formation, as identified in MRP No. R1-2000-62 and shown on "Attachment E".

48. Monitoring of the shallow zone shows the presence of elevated minerals and increased various volatile organic compounds (VOCs), including vinyl chloride.

The shallow VOC plume extends beyond the landfill footprint towards the southwest County property boundary. Inorganic constituents have also been detected at elevated levels. The source area was identified as a leak in the Landfill 1 toe-area barrier wall. The extent of contamination appears to be contained within the area between the landfill toe barrier wall and the property line barrier wall systems and is consistent with the trend of shallow groundwater flow. The upper Landfill 1 existing unit has also had confirmed detections of VOC's at a northern perimeter monitoring well (No. F5) in close proximity to the waste unit. The source of this VOC detection is likely landfill gas migration, and detections have been transient.

49. The Discharger has implemented an Evaluation Monitoring and Corrective Action Program (EMCAP) to address the release and investigate all potential sources of contamination. Interim measures to address the release have been implemented including: removal of the central canyon sedimentation pond and redirection of all surface flow around the toe; installation of a collection station within the barrier wall leak for discharge to the leachate ponds; improvements to the landfill gas and leachate extraction and collection system to de-water the landfill of leachate; and conducting a groundwater remediation and feasibility study.

50. To control landfill gas (LFG), the Discharger also installed numerous additional landfill gas extraction wells.

51. On May 13, 1999, Regional Board staff requested the Discharger to conduct additional evaluation of the landfill gas and leachate collection facilities. A report was submitted on May 28, 1999, indicating that excessive leachate volumes, in excess of 100'deep in onsite wells, were present within the Landfill 1 refuse prism, thereby inundating collectors and inhibiting the collection of landfill gas. On July 19, 1999, the Discharger was directed to implement additional leachate extraction necessary to de-water the landfill and develop a plan for additional remedial measures, pursuant to section 13267 of the California Water Code. An initial workplan was submitted to address needed remedial measures in accordance with Section 13267 of the Water Code by the required submittal dates.

52. Although progress has been made in collection and extraction of leachate from Landfill 1, further remedial efforts are needed to minimize the leachate buildup on the leachate collection and recovery system, landfill gas collector system and Landfill 1 barrier wall.

53. On May 3, 1999, pursuant to section 13267 of the California Water Code, Regional Board staff also requested the installation of landfill gas monitoring probes along the main landfill haul road separating the current bottom of the Landfill 1 existing unit and the proposed Landfill 2-expansion unit. The probes were needed to monitor the effectiveness of gas removal in an area of potential outward gas migration from the unlined Landfill 1 towards the proposed adjacent underdrain system for Landfill 2.

54. The Discharger installed 7 Temporary Gas Probes at four locations as noted in Attachment "F". The depth of these probes ranges from 16 to 41 feet below ground surface. Initial monitoring of the probes detected low levels of landfill gas within all probes with the exception TMP-3, which was non-detect for methane. Landfill gas monitoring results for the Temporary Gas Probes has shown improvement, with no detected levels of methane in the probes since March 29,

2000. However, the following findings indicate continued monitoring of the probes is warranted to demonstrate adequate compliance through future wet seasons.

a. Deeper probes TMP-2 (shallow) and TMP-3 have been, at times, inundated by groundwater during the wet season, therefore monitoring was not possible.
b. TMP-3 remains flooded as of the June 7, 2000, monitoring event.
c. TMP-1 was initially reported to have detection of 10% methane by volume in June of 1999. December 1999 and January 2000 results indicated increased landfill gas detections of 30 % methane by volume during the wet season. TMP-1 results for February 18, 2000, through March 22, 2000 indicate negligible detections of methane. Since March 29, 2000, TMP-1 results indicate methane has not been detected.

55. The Discharger is continuing to address necessary remedial efforts to control landfill gas and leachate volumes. Continued progress to abate the build-up of leachate and to mitigate landfill gas migration towards the East Canyon is required in accordance with the Compliance Time Schedule Component of this Order, Provision No. 21. A technical demonstration of adequate mitigation is required prior to construction of Phase III of the Landfill 2 East Canyon expansion plans.

56. In the event landfill gas contaminants are detected within the discharge from the East Canyon expansion underdrain area, the Discharger will implement corrective action and collect all underdrain flow for discharge to the Class II surface impoundments.

WASTE MANAGEMENT UNIT DESIGN

57. Under the criteria of Section 20260(b)(1) of Title 27, the natural geologic materials underlying the site are not sufficient to protect beneficial uses of groundwater. Section 20260 (b)(2) therefore requires a minimum, prescriptive two-foot thick, single clay liner (1×10^{-6} cm/sec).

58. The Federal Subtitle D design criteria for new MSW landfills, and lateral expansions of existing landfills, are as follows:

a. a leachate collection and removal system (LCRS)
b. a single synthetic liner at least 40 mil thick (at least 60 mil if HDPE)
c. two feet of compacted soil, 1×10^{-7} cm/sec (0.1 feet/year)

The LCRS must convey all leachate which reaches the liner to a sump without relying on unlined or clay-lined conveyances. Engineered alternative designs are allowed in lieu of the prescriptive standard if the design meets the performance criteria of the regulation (40 CFR Sections 258.40 (a)(1) and (c)), and is approved as an engineered alternative by the Board under Section 20080(b) of Title 27.

59. Implementation of Subtitle D and SWRCB Resolution 93-62 containment criteria for a Class III MSW landfill base-liner, as applied to for this site, are more stringent than Title 27.

60. Although Landfill 1 footprint is unlined, it qualifies as an "existing" Class III MSWLF under Section 20080 (d) of Title 27 and, with the exception of closure, is

therefore exempt from the Title 27 prescriptive containment criteria (the landfill also pre-dates and is exempt from the Subtitle D containment criteria). However, since there has been a release from the WMU, it must comply with the Title 27 requirements for monitoring and corrective action.

61. Landfill 1 was constructed in phases, an upper unlined canyon fill and a lower vertical expansion area constructed with a clay lined dendritic leachate collection system. Landfill 1 is required to operate with minimal buildup of leachate within the waste footprint and leachate collection recovery system (LCRS).

62. During construction of the vertical expansion for Landfill 1, three cutoff barriers were constructed across the bottom of the canyon; one at a mid level area, one at the toe of the ultimate fill area, and one along the property boundary downgradient from all disposal site operations. The barriers are constructed of compacted clay having a permeability of 1×10^{-6} cm/sec or less, and they are keyed into the Franciscan formation.

63. The Discharger proposes to construct an engineered alternative design (EAD) to the prescriptive Title 27 and Subtitle D designs for the Landfill 2 composite liner system. The proposed engineered alternative design substitutes a geosynthetic clay liner (GCL) for one foot of clay in the base liner, and for two feet of clay on the side slopes as shown in Attachment "H" and outlined as follows:

East Canyon Composite Liner and LCRS: Side Slopes:

a. Minimum two-foot operations layer
b. LCRS (geotextile/geonet)
c. 60-mil HDPE geomembrane liner
d. Geosynthetic clay liner (GCL) with 30 mil HDPE backing
e. Geocomposite capillary break
f. Prepared compacted subgrade

East Canyon Composite Liner and LCRS: Floor Area

a. Minimum two-foot operations layer
b. Nonwoven geotextile filter fabric
c. One-foot gravel LCRS drainage layer
d. Geotextile cushion layer
e. 60-mil HDPE geomembrane liner (bottom side textured)
f. Geosynthetic clay liner (GCL) with 30 mil HDPE backing
g. 1' thick compacted clay liner (1×10^{-7} cm/sec)
h. Geotextile separator layer
i. 1' thick capillary break/underdrain system (granular materials)
j. Prepared compacted subgrade

Phase V Liner and LCRS: Tie into Existing Unit

a. Minimum two-foot operations layer
b. Geocomposite LCRS
c. 60-mil HDPE geomembrane liner (bottom side textured)
d. Geosynthetic clay liner (GCL)

e. Geocomposite leachate collection layer
f. Sub-base layer
g. Reinforced layer
h. Prepared subgrade of intermediate cover

64. The Discharger is requesting approval of the EAD for Landfill 2 based on technical findings stating the EAD is as protective, and likely more protective, than the prescriptive liner and satisfies Finding No. 58, above.

65. The Discharger has made the demonstration required by Section 20080(b) of Title 27, namely that construction of a prescriptive standard liner is unreasonably or unnecessarily burdensome and will cost substantially more than an EAD, and that there is a specific EAD that is consistent with both the performance goal and the prescriptive standard which affords equivalent protection against water quality impairment. This demonstration was made in the January 2000 Joint Technical Document, Section 8 and JTD Appendix E.

The Discharger has also demonstrated that the EAD satisfies the performance criteria contained in 40 CFR Section 258.40 because:

a. Leachate will be controlled during the operational life of the unit.
b. Landfill gas will be controlled as long as the landfill is biologically active.
c. The expansion WMU will employ a composite liner consisting of 60-mil HDPE underlain by a geosynthetic clay liner.
d. Site-specific hydrologic, climatic, and leachate characteristics have been considered in designing the expansion as described in the Joint Technical Document and the Environmental Impact Report.
e. The groundwater point of compliance is at the southern edge of the landfill and was set after considering the following:
    i. leachate characteristics,
    ii. hydrogeologic factors,
    iii. groundwater flow,
    iv. proximity of groundwater users,
    v. alternative drinking water supplies,
    vi. existing groundwater contamination,
    vii. public health, and
    viii. the predictable capability of the landfill operator.

SURFACE IMPOUNDMENT DESIGN

66. Landfill leachate is managed on-site in two Class II surface impoundments, LP1 and LP2. Both ponds are double lined leachate ponds. LP1, constructed in 1988, has a soil based liner system and a design capacity of 1.3 million gallons. LP2, constructed in 1995, has a geosythetic based liner system and a design capacity of 2.9 million gallons. The geosynthetic based liner system for LP2 includes high-density polyethylene (HDPE) liner materials.

The Class II surface impoundments have been constructed as follows:

Leachate Pond- LP1:

a. Drain rock protection layer

b. 8" thick select soil protection layer
c. Vapor barrier geotextile fabric with overlay of geomembrane
d. 3' thick compacted clay liner (1 x 10^{-8} cm/sec)
e. 1' thick layer permeable drain rock
f. 3' thick compacted clay liner (1 x 10^{-8} cm/sec)
g. Prepared subgrade

Leachate Pond – LP2:

a. 60-mil HDPE geomembrane liner (primary geomembrane liner)
b. LCRS drainage layer (geonet sump riser, granular material, geotextile)
c. 60-mil HDPE geomembrane liner (composite secondary liner)
d. Geosynthetic clay liner (GCL)
e. underdrain system (geocomposite, geonet and filter geotextile)

67. Liquid infiltration has been detected in both LP1 and LP2 leachate collection and recovery system layers indicating leaks of the primary liners. LP1 is schedule for repair in summer of 2000, and will include the installation of a double HDPE liner system with a LCRS over the existing clay liner. LP2 is offline, undergoing testing procedures. Repairs are planned thereafter. As an interim measure, liquid from the LCRS's is pumped and removed to prevent any significant build-up.

WASTE MANAGEMENT UNIT SITING

68. Section 20240 (c) of Title 27 requires that *new* landfills be "sited, designed, constructed and operated", to ensure or maintain at least five feet of separation between the contained wastes and the highest anticipated level of the groundwater table. Existing landfills are to be "operated" to maintain the required separation.

69. The Discharger has proposed an EAD to the five-foot separation requirements. The design incorporates an engineered alternative to the minimum separation between the highest anticipated groundwater and the waste, due to the fact that areas of the Landfill 2 East Canyon expansion contain shallow groundwater including seasonal springs. The proposed containment system design includes:

Base grade:

a. 1 foot thick granular blanket as a capillary break-underdrain layer
b. Capillary break underdrain layer discharge pipe

Side slopes:

a. Geotextile filter
b. Geonet
c. Geotextile filter

70. The Discharger has proposed that the EAD provides an equivalent or improved water quality protection design as compared to the prescriptive standards by:

a. A positive barrier to the capillary rise, effectively separating groundwater from the liner,

b. providing a means of controlling, collecting, and monitoring groundwater migrating beneath the landfill,
c. providing a means of first detecting and then removing leachate in the event it penetrates the composite liner; and,
d. providing an alternative secondary component of the composite liner (GCL) with a hydraulic conductivity at least a hundred times less than the Title 27, CCR and Subtitle D prescriptive standards.

71. The Discharger has demonstrated that the EAD satisfies the engineered alternative design criteria contained in Title 27 CCR 20080 (a) (4) (b) for the above noted reasons.

72. The Discharger has provided the necessary document certifications pursuant to Section 20240(d) of Title 27 for design and construction of each existing landfill unit at the site.

73. Approximately 1.7 million cubic yards of soil and rock will be excavated during the course of preparing the subgrade and perimeter drainage channels to accommodate the expansion landfill. The soil will be stockpiled for use in Landfill 1 as final cover and for other future operations.

CLOSURE AND FINANCIAL ASSURANCES

74. Since Landfill 1-Existing Unit was not closed prior to the federal deadline (October 9, 1993), the closure requirements of Subtitle D apply to all of Landfill 1.

75. The Discharger has proposed to close the entire landfill inclusive of Landfill 1 and Landfill 2 following completion of final Phase V construction over both units. Closure is estimated to occur in 2014. The highest elevation of the close landfill will be about 565 feet MSL.

76. The Discharger has submitted a Preliminary Closure and Post-Closure Maintenance Plan describing the planned closure configuration for both landfills. The final cover designs are as follows:

Landfill 1:

a. Erosion layer,-minimum one-foot vegetative cover soil
b. Drainage layer,- geocomposite with sufficient hydraulic capacity
c. Barrier layer,-GCL (5×10^{-9} cm/sec) *or* minimum one-foot thick clay layer (1×10^{-6} cm/sec)
d. Foundation layer,-minimum two-foot thick soil layer (may incorporate intermediate cover)

Landfill 2:

a. Erosion layer,-minimum one-foot vegetative cover soil
b. Drainage layer,- geocomposite with sufficient hydraulic capacity
c. 40 mil textured geomembrane

d. Barrier layer,-GCL (5×10^{-9} cm/sec) *or* minimum one-foot thick clay layer (1×10^{-6} cm/sec)
e. Foundation layer,-minimum two-foot thick soil layer (may incorporate intermediate cover)

The use of GCL in lieu of clay would be an EAD to the prescriptive Subtitle D standard for a composite liner.

77. Perimeter slopes in the existing landfill area will be no greater than 3:1 (horizontal-to-vertical) for Landfill 1 and the final slopes in the expansion area will be approximately 4:1. The top deck of Landfill 2 will be sloped at 5% for adequate drainage.

78. Slope stability analyses were performed for the site including seismic site response and deformation analyses completed for the Healdsburg-Rogers Creek Fault. Deformations in the landfill mass/liner system and final cover associated with the calculated yield accelerations were evaluated and found to be less than 6 inches. Interface testing was completed to evaluate the strength of the critical interface between the GCL and geomembrane under hydrated and unhydrated conditions. Slope stability analyses were completed using the interface test results and modified waste shear strength. Results of the analyses indicate that all factors of safety are larger than 1.5 and seismically induced deformations are less than 6 inches.

79. The financial assurance mechanism consists of an Enterprise Fund for closure and a Pledge of Revenue for post-closure maintenance. Enterprise monies are paid into the fund annually or pledged in accordance with an approved estimate, as waste is discharged to the landfill. The current preliminary closure cost estimate for both landfills is $14,393,106 as estimated in 2000 dollars. The current post-closure maintenance cost estimate is 10,310,446 as estimated in 2000 dollars.

80. The discharger is required to update approved cost estimates annually to account for inflation.

81. The Discharger has provided for $1.67 million to cover the costs of corrective action for a known or reasonably forseeable release (RFR) at the existing landfill. It is estimated that an additional $300,000 will be sufficient to cover corrective action costs for a possible release from the Landfill 2- East Canyon expansion unit. Board staff has approved the plan and amount funded for the existing landfill, pending further development and confirmation of estimates for the expansion unit. The financial assurance mechanism is planned as a Pledge of Revenue. Sonoma County is in the process of updating the financial mechanism to reflect a combined total for both RFR cost estimates.

On August 4, 2000, the discharger submitted Sonoma County Board of Supervisors Resolution No. 00-0831, dated July 11, 2000, and a Pledge of Revenue Agreement, signed July 19, 2000, by Sonoma County Director of Transportation and Public Works and County Counsel, which establishes financial assurance for both landfill units. The combined Pledge of Revenue, corrective action cost estimate is 2,048,127, adjusted for year 2000 inflation, and will be complete once it is reviewed and signed by the California Integrated Waste Board representatives.

82. An annual review of the RFR scenario and cost estimate is required within the facility's annual report. As a result of the update, any additional financial assurance monies will need to be provided for within the annual update.

CEQA AND OTHER CONSIDERATIONS

83. The discharge of waste to the existing Central Disposal Site is presently governed by Waste Discharge Requirements Order No. 89-8, adopted by the Regional Water Board on February 22, 1989, and General Waste Discharge Requirements Order No. 93-83, adopted by the Regional Water Board on September 22, 1993.

84. The action to revise WDRs for the existing solid waste management facility (Landfill 1), and the proposed expansion (Landfill 2), is subject to the provisions of the California Environmental Quality Act (Public Resources Code Section 21000, et seq.).

85. Two Environmental Impact Reports (EIRs) were prepared for the County of Sonoma Department of Public Works, Transportation and Integrated Waste Division and approved by the Sonoma County Board of Supervisors on August 18, 1998 and December 15, 1998, to satisfy the requirements of the California Environmental Quality Act. The EIRs identified significant environmental impacts associated with the landfill expansion project and the reasonably foreseeable rock extraction project, and included a site mitigation plan for each significant impact.

86. The EIRs identified the following potential significant water quality and biological impacts:

a. Grading may cause soil erosion and a release of sediment
b. Leachate storage ponds may not be adequately sized
c. Landfill gas may impact the underdrain and discharge to surface water
d. Spread of existing groundwater contamination
e. During construction there could be spills of fuels, liquids or explosives, contaminating surface water
f. Existing groundwater monitoring program is not adequate to detect contamination for the expansion area
g. Existing gas monitoring system may not be adequate to detect gas migration from the expansion area
h. Blasting could fracture rock, damage soil liners, buried leachate control of gas collection pipes, groundwater monitoring wells and a section of the eastern leachate pond
i. Expansion will displace area of wetlands, riparian vegetation habitat for red-legged frog, individual frog or egg masses and active raptor nests

87. The EIRs evaluated the impacts and found that the implementation of a corrective action plan, leachate management plan, spill plan, blasting plan and expanded groundwater and underdrain monitoring plan, in addition to compliance with Title 27 and Subtitle D and a Wetlands Mitigation Program, will provide adequate water quality protection and reduce potential water quality and biological impacts to a less-than-significant level. These waste discharge requirements include requirements that avoid or substantially lessen significant impacts to water quality.

88. The EIRs found that the projects would have the following significant impacts after mitigation as listed in the summary table below:

Summary of Significant Impacts and Mitigation Measures that Substantially Lessen Environmental Impacts

PROJECT IMPACT	MITIGATION
Air Quality	**Air Quality**
1. Nox emissions resulting from the landfill expansion will exceed significance thresholds during the years 2005 through 2014.	1. Reduce emissions by: requiring contractors to limit idling time of diesel equipment and to service equipment at regular intervals; including incentives for using electric motors for stationary equipment and natural gas fuel for mobile equipment; and requiring that explosives contain at least 5.7% fuel oil by weight.
2. ROG emissions from the expansion will exceed significance thresholds shortly after year 2005 through 2014.	2. Reduce emissions by: continuously reviewing the landfill gas collection system to incorporate the latest technology to minimize the release of landfill gas to the atmosphere and require contractors to limit idling time of diesel equipment and to service equipment at regular interval, including incentives for using electric motors for stationary equipment; blasting standards.
3. The excavation area could, during the refuse disposal phase of the project, generate odors that could result in off-site complaints.	3. Minimize potential for landfill odors by maintaining an adequate stockpile of cover material to ensure that refuse can be covered each day. Conduct monthly inspections of landfill cover for cracks, and repair as needed.
Land Use	**Land Use**
4. Project components would cause some agricultural land to be covered to non-agricultural use.	4. By easement or deed restriction, retain portion of land to be acquired in agricultural use, by easement of deed restriction dedicate an unused portion of the landfill parcel for permanent agricultural use.
Visual	**Visual**
5. Construction and operation of the East Canyon landfill expansion results in a	5. Plant trees near Mecham Road/Hammel intersection to partially screen the expansion area.

significant visual change as seen from portions of Pepper Road and Mecham Road.	
6. The landfill expansion will cause the existing litter problem to continue for a longer time into the future, resulting in a visual impact on local roads.	6. Continue the existing litter control program and expand it to include the East Canyon landfill, and expand it to include the rock excavation area while the landfill is in operation; post signs encouraging reporting of violations.
7. At project completion the East Canyon landfill expansion will have a different appearance from the surrounding landscape when viewed from portions of Mecham and Pepper Roads.	7. Plant trees near Mecham/Hammel intersection to partially screen the landfill.
Cumulative Impacts With Rock Extraction Project	**Cumulative Impacts With Rock Extraction Project**
AIR QUALITY	**AIR QUALITY**
8. Same as 1, 2 and 3 above, except that impact will be until the year 2015.	8. Same as 1, 2 and 3 above.
9. The landfill expansions and the Rock Extraction project would continue the existing potential for landfill odors until the year 2015.	9. Minimize potential for landfill odors; by maintaining an adequate stockpile of cover materials to ensure that refuse can be covered each day.
TRAFFIC	**TRAFFIC**
10. Cumulative traffic would degrade the operation of the Stony Point/W. Railroad intersection to Level of Service (LOS) D between 2005 and 2015.	10. Proposed project and Rock Extraction project to pay traffic mitigation fee.
11. As a result of cumulative traffic, the Redwood Highway - Commerce Boulevard intersection would degrade to	11. Signalization and an extra northbound lane to be implemented by others.

LOS F by 2015.	
LAND USE	**LAND USE**
12. The proposed project would add to the cumulative conversion of agricultural land to non-agricultural use.	12. No practical mitigation has been identified.
13. The Rock Extraction project would cause the existing litter problem to continue for a longer time into the future, resulting in a visual impact on local roads until 2015 instead of 2014.	13. Continue the existing litter control program as long as landfill is open.
NOISE	**NOISE**
14. Traffic associated with landfilling phases would result in significant noise impacts on eleven Mecham Road and eleven Stony Point Road residences, possibly resulting in interior levels that exceed 45 dB.	14 Determine the residences which cannot meet the 45dB interior noise level standard and pay cost of improving the residences to meet that standard; noise sensitivity training.
15.Traffic associated with the landfilling phase would result in significant noise impacts on 11 residences on Stony Point Road.	15. Construct a 6 foot high solid wood fence along the front of the property lines.

89. The discharger has identified several environmental effects that may not be mitigated to a less than significant level. These effects include traffic and circulation, noise, air quality, land use and visual resources. The discharger found that the following benefits of the project override these above effects: environmental, economic, legal, social, technological, and other benefits of the project. Specific benefits include:

    a. Adding additional landfill capacity will protect public health and minimize illegal dumping.
    b. Economic benefits include lower refuse disposal costs than other alternatives.
    c. Environmental impacts associated with disposal will be minimized since the landfill expansion would allow continued disposal of solid waste in a regulatory-compliant facility as opposed to illegal disposal.

d. The landfill expansion component provides a convenient and cost effective disposal service.
e. Construction of the landfill expansion will ensure that solid waste infrastructure is in place to accommodate existing citizens and new development.
f. The landfill expansion will demonstrate capacity at least through the year 2009 as required by law.
g. The landfill expansion will provide for disposal capacity during the time it takes to develop a new disposal site for the longer term.

90. The Regional Water Board has considered the EIR and proposed mitigation measures and has determined that compliance with this order will mitigate any potential adverse water quality impacts.

91. The Regional Water Board Water Quality Control Plan for the North Coast Region includes water quality objectives and receiving water limitations.

92. This order implements:

a) *The Water Quality Control Plan for the North Coast Region (Basin Plan)*
b) The prescriptive standards and performance goals of Chapters 1 through 7, Subdivision 1, Division 2, Title 27, of the CCR, effective July 18,1997, and subsequent revisions;
c) The prescriptive standards and performance criteria of RCRA Subtitle D, Part 258;
d) State Water Resources Control Board Resolution No. 93-62, *Policy for Regulation of Discharges of Municipal Solid Waste*, adopted June 17, 1993; and
e) The Stemple Creek Total Maximum Daily Load and Attainment Strategy adopted December 11, 1997.

PROCEDURAL REQUIREMENTS

93. All local agencies with jurisdiction to regulate land use, solid waste disposal, air pollution and to protect public health have approved the use of this site for the discharges of waste to land stated herein.

94. The Regional Water Board has notified the discharger and interested agencies and persons of its intent to prescribe waste discharge requirements for the discharge and has provided them with an opportunity to submit their written comments and recommendations.

95. The Regional Water Board, in a public meeting, heard and considered all comments pertaining to this facility and discharge.

96. The permitted discharge is consistent with the antidegradation provision of State Water Resources Control Board Resolution No. 68-16. The impact on existing water quality will be insignificant.

THEREFORE, IT IS HEREBY CERTIFIED that this Order certifies that any discharge from the Landfill 2- East Canyon expansion project will comply with the applicable provisions of sections

301 ("Effluent Limitations"), 302 ("Water Quality Related Effluent Limitations"), 303 ('Water Quality Standards and Implementation Plans"), 306 ("National Standards of Performance"), and 307 ("Toxic and Pretreatment Effluent Standards") of the Clean Water provided that the following requirements are complied with AND:

IT IS FURTHER ORDERED that Waste Discharge Requirements Order No. 89-8 be rescinded and General Waste Discharge Requirements Order No. 93-83 be amended to delete the Central Landfill, and the discharger, in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted thereunder, shall comply with the following:

A. DISCHARGE PROHIBITIONS

1. Disposal of waste outside of the permitted footprint, shown on Attachment B, incorporated herein and made part of this Order, is prohibited.

2. The discharge of "hazardous waste" and "designated waste" at this facility is prohibited. The discharge of leachate from the landfill unit and LCRSs at this facility is prohibited. For the purposes of this Order, the terms "hazardous waste" and "designated waste" are as defined in Title 27, CCR.

3. The discharge of waste including solid, liquid, leachate, or landfill gas to surface water, surface water drainage systems or groundwater is prohibited.

4. The discharger shall not cause the concentration of any Constituent of Concern to exceed its respective concentration limit in any monitoring medium. The concentration limit for each monitoring parameter will be set at the background concentration. Data analysis will be performed in accordance with the approved Monitoring and Reporting Order.

5. Discharges of waste to either a landfill unit that has not received wastes or to a lateral expansion of a landfill unit are prohibited, unless the discharge is to an area equipped with a containment system which meets requirements in Item B Discharge Specifications, below.

6. The discharge of liquid or semi-solid waste (i.e., waste containing less than 50 percent solids) to Landfill 1 and Landfill 2 is prohibited, with the following exceptions:

   a) de-watered sewage or water treatment sludge as provided in Section 20220(c) of Title 27 may be disposed of on lined areas or the vertical expansion area of Landfill 1, and

   b) leachate may be used for dust control over lined areas with the written approval of Board staff.

7. The discharge of solid waste containing free liquid or moisture in excess of the waste's moisture holding capacity to Landfill 1 or Landfill 2 is prohibited.

8. Ponding of liquids, including rainfall runoff and leachate, over solid waste disposal cells is prohibited.

9. The disposal of containerized liquids at this facility is prohibited.

10. The discharge of waste to ponded water from any source is prohibited.

11. The discharge of waste to surface waters or within 50 feet of surface waters is prohibited.

12. The discharge of wastes which have the potential to reduce or impair the integrity of containment structures or which, if commingled with other wastes in the unit, could produce violent reaction, heat or pressure, fire or explosion, toxic by-products, or reaction products which in turn:

    a) require a higher level of containment than provided by the unit,
    b) are "restricted hazardous wastes", or
    c) impair the integrity of containment structures,
    is prohibited.

13. The disposal of wastes containing greater than one percent (>1%) friable asbestos is prohibited.

14. The discharge of wastes to Landfill 2- East Canyon Phases is prohibited until (1) all relevant tasks in Provision 21 are completed to the satisfaction of the Executive Officer, and (2) each phase of liner is constructed and certified to be complete by the Discharger's engineer and approved in writing by the Executive Officer.

15. The discharge of landfill wastes to a storm water sedimentation basin, including VOC-impacted groundwater, is prohibited.

16. In the event landfill gas contaminants are detected within the discharge from the East Canyon expansion underdrain area, the Discharger shall implement corrective action and collect all underdrain flow as leachate for discharge to the Class II surface impoundments.

17. The discharge of any waste in any manner not specifically described in the findings and regulated by this Order is prohibited.

18. Creation of a pollution, contamination, or nuisance, as defined by Section 13050 of the California Water Code (CWC), is prohibited. [Health and Safety Code, Section 5411]

B. DISCHARGE SPECIFICATIONS

General Specifications

1. The discharge of wastes shall not cause water quality degradation by allowing a statistically or non-statistically significant increase over background or baseline concentrations as determined in accordance with Monitoring and Reporting Program No. R1-2000-62.

2. Wastes shall only be discharged into, and shall be confined to, the landfill units specifically designed for their containment.

3. Leachate generation by a landfill unit shall not exceed 85% of the design capacity of the sump pump. If leachate generation exceeds this value or if the depth of fluid in an LCRS exceeds the minimum needed for efficient pump operations, then the Discharger shall immediately cease the discharge of sludges and other high-moisture wastes to the landfill unit and shall notify the Board in writing within seven days. Notification shall include a timetable for corrective action necessary to reduce leachate production.

4. Waste discharged at this site shall be provided with approved interim cover material. The active face shall not be excessively large for daily waste placement. The active face shall receive approved daily cover. All inactive areas shall be capped with at least one foot of clean, earthen material or approved interim cover material, compacted and graded to drain from the active area.

5. All daily cell runoff shall be collected and controlled as leachate.

General WMU Construction

6. Clay liners shall have a maximum hydraulic conductivity of 1×10^{-7} cm/sec and a minimum relative compaction of 90%. Landfill caps shall have a maximum hydraulic conductivity of 1×10^{-6} cm/sec and a minimum relative compaction of 90%. Hydraulic conductivities of liner materials shall be determined by laboratory tests using solutions with similar properties as the fluids that will be contained. Hydraulic conductivities of cap materials shall be determined by laboratory tests using water. Hydraulic conductivities determined through laboratory methods shall be confirmed by field-testing in accordance with the General Monitoring and Reporting Provisions. Construction methods and quality assurance procedures shall be sufficient to ensure that all parts of the liner and cap meet the hydraulic conductivity and compaction requirements.

7. LCRSs shall be designed, constructed, and maintained to collect twice the anticipated daily volume of leachate generated by the WMU and to prevent the buildup of hydraulic head on the underlying liner at any time. The depth of fluid in any LCRS sump shall be kept at or below the level needed to ensure efficient pump operation.

8. Each landfill unit phase constructed after the effective date of this Order shall be designed and constructed in accordance with the applicable provisions of Title 27 and this Order and approved by the Executive Officer prior to operation. Prior to the beginning of construction for each new construction phase, a Final Design Report shall be submitted to the Executive Officer for review and approval and shall include, but not be limited to, the engineered design plans for the WMU, the contract specifications, a construction quality assurance (CQA) plan to verify that construction specifications will be met, and a revised water quality monitoring plan. Written approval of the final design report shall be obtained from the Executive Officer prior to construction of the landfill liner or cap. A final construction report shall be submitted for approval by the Executive Officer after each phase of construction and prior to the discharge of waste into the constructed phase. The final construction report shall include, but not be limited to, as-built plans for the WMU, a CQA report with a written summary of the CQA program and all test results, analyses, and copies of the inspector's original field notes, and a certification as described in the Landfill Specifications, below.

Landfill Specifications

9. All WMU containment structures installed after October 9,1993, shall meet the requirements of Subtitle D, including the prescriptive requirements described in Finding No. 58, or the EAD described in Finding No. 63.

10. All WMU containment structures shall meet the general criteria set forth in Section 20320 of Title 27.

11. WMU containment structures shall be designed and constructed under the direct supervision of a California registered civil engineer, or a certified engineering geologist, and shall be certified by that individual as meeting the prescriptive standards (except where exempt or approved as an engineered alternative design herein) and performance goals of Title 27 prior to waste discharge. In the case of an engineered alternative, the registered civil engineer or certified engineering geologist must certify that the waste management unit has been constructed in accordance with Board approved plans and specifications. Designs shall include a Construction Quality Assurance Plan, the purpose of which is to:

    a. demonstrate that the waste management unit has been constructed according to the specifications and plans approved by the Board.
    b. Provide quality control on the material and construction practices used to construct the waste management unit and prevent the use of inferior products and/or materials which do not meet the approved design plans and specifications.

12. Materials used to construct liners shall have appropriate physical and chemical properties to ensure containment of discharged waste over the operating life, closure, and post closure maintenance period of the waste management unit.

13. New landfill units and lateral expansions shall not be located in wetlands unless the Discharger has successfully completed, and the Board has approved, all demonstrations required for such discharge under 40 CFR 258.12(a).

Surface Impoundment Specifications

14. Both Class II Surface Impoundments, leachate ponds LP1 and LP2, shall be operated in accordance with an approved leachate management plan. All offsite discharge of leachate shall be to a legal point of disposal as presented within the approved leachate management plan. The legal point of disposal is currently the City of Santa Rosa Sub-Regional Laguna Sewage Treatment Plant under permit No. SR-IW5202. The existing permit to discharge to the Laguna Plant is scheduled to expire on April 07, 2002. The City of Santa Rosa periodically updates their requirements on a 5 year basis. The Discharger is intending to update their permit with the City of Santa Rosa in accordance with the periodic review. Any change in the legal point of disposal shall be provided in writing to the Regional Board prior to the change in discharge.

15. The Discharger shall maintain at least 2 feet of freeboard in the leachate ponds LP1 and LP2 at all times.

16. The leachate ponds shall be operated with dedicated freeboard measurement devises at all times.

17. The Discharger shall notify Regional Board staff immediately of any violations in freeboard requirements in either LP1 or LP2 any time.

18. Leachate ponds LP1 and LP2 shall be fully inspected annually and integrity tested, as needed, in accordance with the applicable provisions of Title 27. Inspection reports or testing results shall be submitted by **February 15, annually** and include a complete report of findings and provisions for completion of all necessary maintenance, repairs, and submittal of CQA reports for repairs.

Landfill Closure Specifications

19. At closure, each landfill shall receive a final cover in accordance with the prescriptive standards of Subtitle D and Title 27, or the EAD, as described in Finding No. 76.

20. Vegetation shall be planted and maintained over intermediate cover and closed landfill areas. Vegetation shall be selected to require a minimum of irrigation and maintenance and shall have a rooting depth not in excess of the vegetative layer thickness.

21. Closed landfill units shall be graded to at least a three-percent (3%) grade and maintained to prevent ponding and infiltration.

22. The WMU slopes shall not exceed a horizontal-to-vertical ratio of 1.75:1, without benching, to ensure slope stability. Other areas with slopes greater than ten percent, surface drainage courses, and areas subject to erosion by wind or water shall be designed and constructed to prevent such erosion.

23. Closure of each waste management unit shall be performed under the direct supervision of a registered civil engineer or California certified engineering geologist.

Protection from Storm Events

24. Both active and closure WMUs shall be designed, constructed, and operated to prevent inundation or washout due to floods with a 100-year return period. Class III landfill units and related containment structures shall be constructed and maintained to prevent, to the greatest extent possible, ponding, infiltration, inundation, erosion, slope failure, washout, and overtopping under 100-year, 24-hour precipitation conditions.

25. Precipitation and drainage control systems shall be constructed on both active and closed WMUs. They shall be designed and constructed to accommodate the anticipated volume of precipitation and peak flows from surface runoff under 100-year, 24-hour precipitation conditions.

26. Prior to the anticipated rainy season, but no later than **October 1, annually**, any necessary erosion control measures shall be implemented, and any necessary construction, maintenance, or repairs of precipitation and drainage control facilities shall be completed to prevent erosion or flooding of the facility and to prevent surface drainage from contacting or percolating through wastes. By **August 1, annually** the Discharger shall submit to the Executive Officer a Winterization Plan describing measures planned to prepare the site and conduct operations during the wet season. By **December 1, annually**, the Discharger shall submit a report to the Executive Officer describing measures taken to comply with this specification (the information may be included in the Annual Monitoring Report per the monitoring program).

27. Surface drainage shall be designed to minimize infiltration and shall not be allowed to contact wastes. Internal site drainage shall be located to the maximum extent practicable, such that they do not cross over landfill areas. Site drainage over landfill areas shall be contained in engineered conveyance structures or in drainage ditches which are lined with at least one foot of compacted soil having an in-place permeability of 1×10^{-6} or less.

28. New landfill units, existing landfill units, and lateral expansions thereof, shall not be located in the 100-year floodplain of any surface water unless the Discharger has successfully completed, and the Board has approved, all demonstrations required for such discharge under Subtitle D (40 CFR 258.11).

C. PROVISIONS

1. The Discharger shall comply with these WDRs and the attached MRP No. R1 2000-62. A violation of the MRP is a violation of these waste discharge requirements. The Discharger shall further comply with all applicable provisions of Title 27 and Subtitle D not specifically referred to in this Order.

2. The Discharger shall comply with the attached General Monitoring and Reporting Provisions, which are hereby incorporated into this Order. A violation of any of the standard provisions and reporting requirements is a violation of these waste discharge requirements.

3. Prior to landfill liner construction the discharger shall obtain any and all permits required under federal, state, or local laws.

4. Prior to landfill construction, with added maintenance as necessary during the operational life of the landfill, the Discharger shall implement the Wetlands Mitigation and Monitoring Program, and submit annual monitoring reports as described in MRP No.R1-2000-62, a part of this Order. The Discharger shall further conduct long term monitoring of wetlands created off-site pursuant to this plan and to MRP No. R1-2000-62. 2.6 acres of wetlands mitigation shall be fully functional and meet federal wetland delineation criteria by **December 31, 2005**. The wetland mitigation site shall remain functional from this date through the life of this permit.

5. The Discharger shall maintain waste containment facilities and precipitation and drainage control systems throughout the post-closure maintenance period, and shall immediately notify the Board of any flooding, equipment failure, slope

failure, or other change in site conditions which could impair the integrity of waste or leachate containment facilities or of precipitation and drainage control structures.

6. The Discharger shall continue to monitor each WMU and all underlying media per MRP No. R1-2000-62 throughout the post-closure maintenance period, and shall continue until the Board determines that the wastes remaining at the site no longer threaten water quality.

7. The Discharger shall have the continuing responsibility to assure protection of waters of the State from discharged wastes, including leachate, that may be generated and discharged during the closure, and post-closure maintenance period of the facility and during subsequent use of the property for other purposes.

8. The Discharger shall maintain legible records of the volume and type of each waste discharged for each landfill unit and the manner and location of discharge. Such records shall be maintained at the facility or the facility's administration office until the beginning of the post-closure maintenance period. These records shall be available for review by representatives of the Board and of the State Water Resources Control Board at any time during normal business hours. At the beginning of the post-closure maintenance period for each of the landfill areas, copies of these records shall be sent to the Regional Board.

9. The Discharger shall provide proof to the Board **within sixty days after completing final closure** that the deed to the landfill facility property, or some other instrument that is normally examined during title search, has been modified to include, in perpetuity, a notation to any potential purchaser of the property stating that:

   a. the parcel has been used as a municipal solid waste landfill;
   b. land use options for the parcel are restricted in accordance with the post-closure land uses set forth in the post-closure plan and in WDRs for the landfill; and
   c. in the event that the Discharger defaults on carrying out either the post-closure maintenance plan or any corrective action needed to address a release, then the responsibility for carrying out such work falls to the property owner.

10. The Discharger or persons employed by the Discharger shall comply with all notice and reporting requirements of the State Department of Water Resources with regard to the construction, alteration, destruction, or abandonment of all monitoring wells used for compliance with this Order or with MRP No. R1-2000-62, as required by Sections 13750 through 13755 of the California Water Code.

11. By **February 15, 2005,** the Discharger shall submit to the Board a preliminary closure and post-closure maintenance plan cost estimate, prepared in accordance with Section 21769 of Title 27. The plan shall include all information necessary for Board staff review and approval of financial assurance cost estimates for closure and post-closure maintenance of each landfill submitted to the California Integrated Waste Management Board (CIWMB), pursuant to Sections 20950(f), and 22205 et seq. of Title 27.

12. The Discharger shall obtain and maintain adequate assurances of financial responsibility for initiating and completing corrective action for all known and

reasonably foreseeable releases from a waste management unit at the facility in accordance with Sections 20380(b) and 22222 of Title 27. The Discharger shall provide an updated corrective action cost estimate to the Regional Board for review by **February 15, 2005,** and every five years thereafter, for the term of this permit. The Discharger shall demonstrate to the CIWMB and report to the Regional Board that it has established one of the acceptable financial assurance mechanisms described in Sections 22228 and 22240-22254 of Title 27 in at least the amount of the cost estimate approved by the Executive Officer, prior to waste placement in Landfill 2.

13. In the event the Regional Board determines that the County of Sonoma has failed or is failing to perform corrective action as required by law, the California Integrated Waste Management Board may direct the County of Sonoma to pay from the pledged revenue such amounts as necessary to insure sufficient corrective action. The County of Sonoma shall be obligated to use such funds for corrective action in accordance with the directive of the Regional Board.

14. In accordance with Title 27, the Discharger shall further provide and maintain adequate financial assurances to cover the costs of closure and post-closure maintenance for each waste management unit and shall report to the Regional Board by **February 15, annually,** that it has demonstrated financial responsibility to the CIWMB.

Water Quality Certification
Standard Conditions

15. This certification action is subject to modification or revocation upon administrative or judicial review, including review and amendment pursuant to section 13330 of the California Water Code and section 3867 of Title 23 of the California Code of Regulations (23 CCR).

16. This certification action is not intended and shall not be construed to apply to any discharge from any activity involving a hydroelectric facility requiring a Federal Energy Regulatory Commission (FERC) license or an amendment to a FERC license unless the pertinent certification application was filed pursuant to 23 CCR subsection 3855(b) and the application specifically identified that a FERC license or amendment to a FERC license for a hydroelectric facility was being sought.

17. The validity of any non-denial certification action shall be conditioned upon total payment of the full fee required under 23 CCR section 3833, unless otherwise stated in writing by the certifying agency.

18. There shall be no excavation in the live stream (flowing water). A detailed water diversion plan shall be submitted for approval prior to any work in the stream if water is flowing.

Additional Conditions

19. This project will require coverage under the greater NPDES Construction Stormwater permit, as a phase of development. A Stormwater Pollution Prevention Plan will need to be submitted 30 days in advance of construction which addresses this phase of development.

20. Regional Board staff require notification of project implementation 5 days in advance of any in-stream work.

Compliance Time Schedule

21. Pursuant to Section 13267 (b) of the CWC, the Discharger shall complete the tasks outlined in these WDRs and the attached MRP No. R1-2000-62 in accordance with the following time schedule:

Corrective Action for Landfill 1	**Compliance Date**
Submit workplan to address source reduction of leachate and active leachate extraction and elevation monitoring program.	December 31, 2000
Submit revised schedule for Final EMCAP report and recommendations for groundwater remedial action.	September 30, 2000
Submit Compost Deck engineered design to address infiltration and wet weather operation improvements for review and concurrence.	September 1, 2000, or prior to construction, whichever comes first
Submit workplan for the replacement/repair of groundwater monitoring well F-2.	September 30, 2000
Construction of Landfill 2 Expansion Phases	**Compliance Date**
Submit report of leachate pond repair, integrity test results, and quality assurance report for LP1 and LP2.	1 month prior to discharge of waste to Landfill 2
Submit implementation schedule for Leachate Long Term Management Plan.	September 30, 2000
Provide progress report on status of obtaining Leachate Long Term Management Plan.	Quarterly – due on the 15th day of the month following the reporting quarter
Submit Demonstration of implemented Leachate Long Term Management Plan.	1 month prior to waste placement in Landfill 2
Submit Demonstration of adequate Landfill Gas Migration Control to Landfill 2, Phase III footprint area.	6 months prior to construction of Phase III liner area
Submit landfill gas migration mitigation demonstration, monitoring results and any necessary plans for further mitigation.	Quarterly – due on the 15th day of the month following the reporting period
Submit design phasing plans, specifications, construction schedule, and quality assurance plan for the liner system.	1 month prior to start of each Phase.
Submit Construction Quality Assurance (CQA) status reports. Reports are to include a general location and	2 weeks prior to the start of each liner construction sequence, and

statement of adequate quantity and quality of low permeability soils and suitable materials report for all soil liner construction materials.	monthly, thereafter until the certification report is submitted.
Submit as-built plans, CQA and certification report for each completed area of liner.	2 weeks prior to waste placement or as provided in monthly CQA status reports, which ever comes first.
Submit Demonstration of combined Landfill 1 and Landfill 2 updated Financial Assurance for Known or Foreseeable Release.	1 month prior to waste placement in Landfill 2, or by February 15, 2001, whichever comes first

22. A copy of this Order shall be kept at the discharge facility for reference by operating personnel at all times. Key operating personnel shall be familiar with its contents.

23. The Board will review this Order periodically and will revise these requirements when necessary.

24. Severability

Provisions of these waste discharge requirements are severable. If any provision of these requirements is found invalid, the remainder of these requirements shall not be affected.

25. Operation and Maintenance

The Discharger must maintain in good working order and operate as efficiently as possible any facility or control system installed by the discharger to achieve compliance with the waste discharge requirements.

26. Change in Discharge

The Discharger must promptly report to the Regional Water Board any material change in the character, location, or volume of the discharge.

27. Change in Ownership

In the event of any change in control or ownership of land or waste discharge facilities presently owned or controlled by the discharger, the discharger must

notify the succeeding owner or operator of the following items by letter, a copy of which must be forwarded to the Regional Water Board:

a. existence of this Order, and
b. the status of the dischargers' annual fee account

28. Vested Rights

This Order does not convey any property rights of any sort or any exclusive privileges. The requirements prescribed herein do not authorize the commission of any act causing injury to persons or property, nor protect the discharger from his liability under federal, State, or local laws, nor create a vested right for the discharger to continue the waste discharge.

29. Accidental Spills, Incident Reporting and Monitoring

The Discharger must comply with the Contingency Planning and Notification Requirements Order No. 74-151 and the Monitoring and Reporting Program No. R1-2000-62 and any modifications to these documents as specified by the Executive Officer. Such documents are attached to this Order and incorporated herein. Chemical, bacteriological, and bioassay analyses must be conducted at a laboratory certified for such analyses by the State Department of Health Services.

a. Order No. 74-151 requires immediate incident reporting of unintentional or accidental spills (including Emergency Response actions) and diligent action to abate the effects of the discharge. Written confirmation of the incident is required within two weeks of notification.

b. General Monitoring and Reporting Provisions require sampling and analysis performance criteria in addition to compliance reporting criteria and timeframes.

30. Inspections

The Discharger shall permit authorized staff of the Regional Water Board:

a. entry upon premises in which an effluent source is located or in which any required records are kept;
b. access to copy any records required to be kept under terms and conditions of this Order;
c. inspection of monitoring equipment or records; and
d. sampling of any discharge.

31. Noncompliance

In the event the discharger is unable to comply with any of the conditions of this Order due to:

a) breakdown of waste management equipment;
b) accidents caused by human error or negligence; or
c) other causes such as acts of nature;

the Discharger must notify the Executive Officer by telephone as soon as he or his agents have knowledge of the incident and confirm this notification in writing within two weeks of the telephone notification. The written notification shall include pertinent information explaining reasons for the noncompliance and shall

indicate the steps taken to correct the problem and the dates thereof, and the steps being taken to prevent the problem from recurring.

32. Revision of Requirements

The Regional Water Board will review this Order periodically and may revise requirements when necessary.

33. Adequate Capacity and Future Waste Management Units

Whenever a waste management unit will reach capacity within four years, the discharger shall notify the Regional Water Board in writing. A copy of such notification shall be sent to appropriate local elected officials, local permitting agencies, and the press. The discharger must demonstrate that adequate steps are being taken to address any capacity concerns. The Discharger shall submit a technical report to the Regional Water Board showing how fill volumes will be cell-sequenced for the remaining capacity and a schedule for reaching final elevations. The Discharger shall also submit a technical report summarizing the status of planned or future waste management units. Should the Discharger wish to pursue the "future" landfill expansion units, including the Rock Extraction Project and the West Canyon Landfill, a "Siting Element" proposal inclusive of required fault studies and groundwater investigations, etc. shall be submitted for review and concurrence within 60 days of notification. Once approved, the study shall be performed, as required under Title 27, CCR. The required investigation shall be initiated within 120 days of concurrence with the study. Should the Discharger choose to abandon plans for future expansion units, the Discharger shall report as much under the specified time frames above. This later demonstration must include a schedule for the construction closure of the site and discussion of plans to divert the municipal waste stream to another legal point of disposal following closure. The time frame for filing the required technical report may be extended in writing by the Executive Officer for good cause.

Certification

I, Lee A. Michlin, Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, North Coast Region, on August 25, 2000.

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Lee A. Michlin
Executive Officer

(centraswdswdrs800revised)